Date 2001-03-16	ISO/FDIS 10303-21
Secretariat ANSI/NIST	ISO/TC 184/SC4 WG11 N155

Report of Voting/Annex B

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
Canada	ISSUE NUMBER: CAN-1 CLAUSE: Section 9.2 Data section user-defined entity instance CLASSIFICATION: Technical, minor DESCRIPTION: "A user-defined entity instance is an entity that is not part of the EXPRESS schema specified in the header section." Since each data section has to confirm to one schema specified within the header section and a user-defined entity does not exist in any specified schema in the header section, this means a user-defined entity can be added "on the fly" to any schema during the exchange but not defined within that schema. It may even not be defined anywhere. A better solution is to ask the users to define their special entities within a proprietary schema and include the name of this schema in the header section. The rest will be handled in the normal manner. This approach has several benefits: a. It forces the user to document their extension. (Some other Standards even forces the user to include definitions of these user-defined entities in the header section before they can be used in the data section. A collection of these new entities may point to future candidates for improvements over existing schema) b. Since only the name of the schema is included and not the entity definitions, the proprietority is maintained.	**Accepted**

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	c. In this way, all user-defined entity instances will be fully contained within a few dedicated data sections. Only the parties that can understand this proprietary schema will interpret the data section(s), all others can skip over it (them). With this approach, there is no need for special arrangement of user-defined entity instance. They are like any other entity instances. PROPOSED SOLUTION: RESOLUTION Section cannot be removed without breaking requirement of upward compatibility. Added the following recommendation in a note to section 9.2: "Rather than use the user-defined syntax defined in this clause, it is recommended that an implementation define an EXPRESS schema for the user-defined information and encode this information in a separate data section."	
Canada	ISSUE NUMBER: CAN-2 CLAUSE: Section 10.2.5.2 Internal mapping. CLASSIFICATION: editorial, minor DESCRIPTION: Comment: Both Example 1 and 2 are very straight forward cases. Suggestion to include an example of a) multiple supertype. b) supertypes with no explicit attributes.	**Accepted**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	RESOLUTION Modified example two to show the case where super has no explicit attributes and added a third example showing multiple inheritance,	
Canada	ISSUE NUMBER: CAN-3 CLAUSE: Annex A (normative) CLASSIFICATION: Technical, minor DESCRIPTION: Annex A deals with all different file representations on storage media such as tapes, diskettes, etc. Since the development of physical storage media advances rapidly and its format changes accordingly. In the tape area, there are new formats such as DAT, 8mm, etc. In the disk area, there are CD-ROM, DVD, etc. All these new format for data storage will be defined in their corresponding standards. It will be unwise for this document to put this section normative. PROPOSED SOLUTION: Should change Annex A to Informative. RESOLUTION Annex A specifies the handling of EOL/EOF characters and must remain normative.	**Rejected**
Canada	ISSUE NUMBER: CAN-4 CLAUSE: Annex F, Section F.1 CLASSIFICATION: Editorial, minor DESCRIPTION: Problem: Annex F, Section F.1 Example ... #1=A( );	**Accepted**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	Comment: Entity A has an explicit attribute range of value REAL. It should be #1=A(3.5); RESOLUTION Accept the proposed solution.	
Canada	ISSUE NUMBER: CAN-5 CLAUSE: Annex F, Section F.1 CLASSIFICATION: Technical, minor DESCRIPTION: Annex F, Section F.1 "- when determining the validity of rule a_range_positive ... It must also consider all instances of A and B from data section ONE because those types are explicitly interfaced by schema EXTENSION". Comment: The statement is unclear. It should state only those instances of A & B in section ONE used by section TWO should be considered. Those instances of A&B in section ONE which are not used by section TWO should not be governed by the rule a_range_positive. RESOLUTION During discussion of Annex F, and later consultation with the EXPRESS committee, it became clear that the original intent of the clause and the interpretation put forward in the comment are both valid means of determining the population of a schema. Since the choice of method may result in different populations for rule validation, Annex F has been updated with a protocol for the sender to communicate the context	**Accepted**

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	under which the rules are intended to be validated. This context is communicated via the file_population header section instance. The definition of file_population has been inserted as section 8.2.4. This protocol specifies the means by which a population should be determined from the data sections in the file, and the express schema against which the population should be checked. Clause F.2 has been updated to describe the three determination methods identified during discussion of Annex F and consultation with the EXPRESS committee.	
France	ISSUE NUMBER: FRA-1 AUTHOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: CLASSIFICATION: MINOR EDITORIAL DESCRIPTION: The balloted document (ISO TC184/SC4/WG11 N102) does not conform to ISO and SC4 directives. it does not: specify the nature of the document (is it an amendment or a new edition of ISO 10303-21:1994? Directives require this information be provided at least in the foreword clause in the document) list in the introduction clause which clauses have been modified or added (list of the significant technical changes -see SC4N858) RESOLUTION: The document has been updated to the latest ISO and SC4 directives (SC4 n858 as corrected by QC n176), and has been reviewed using the internal quality review checklist QC n147.	**Accepted**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
France	ISSUE NUMBER: FRA-2 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 5.2 CLASSIFICATION: MINOR EDITORIAL DESCRIPTION: In table 1, the character ~ (ASCII code 126) is missing whereas it is allowed at least in strings (see 6.3.3) PROPOSED SOLUTION: Add it in the group SPECIAL or in the group LOWER RESOLUTION Adopted the proposed solution. Character added to group SPECIAL.	**Accepted**
France	ISSUE NUMBER: FRA-3 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 6.3.3.3 CLASSIFICATION: MINOR EDITORIAL DESCRIPTION: It is not clear in which alphabet, the range 0..255 is considered, in this clause. Is it in ISO 8859 or in ISO 10646? PROPOSED SOLUTION: Precise what is the considered table (we guess it is ISO 8859)	**Accepted**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	RESOLUTION Clarified that the value is an ISO 10646 character from row 0 of the BMP, and also noted that both 10606 and 8859-1 are identical in this range.	
France	ISSUE NUMBER: FRA-4 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 6.3.3.3 CLASSIFICATION: MINOR EDITORIAL DESCRIPTION: An example should be added to clarify the understanding of the \X\ mechanism PROPOSED SOLUTION: Add the example: 'see \X\A7 4.1' 'see § 4.1' RESOLUTION Added example showing section symbol noted above and an embedded newline.	**Accepted**
France	ISSUE NUMBER: FRA-5 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 8.2.4 CLASSIFICATION: MINOR EDITORIAL DESCRIPTION: The identification of the language is not precise enough as ISO 639 defines several codings for languages. In addition, in the clause 8.2.4, the reference should actually be made to ISO 639-2.	**Accepted**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	PROPOSED SOLUTION: Specify that the language shall be identified by a code selected in the list of the Alpha-3 bibliographic codes, defined in ISO 639-2. (NB: ISO/FDIS 10303-214 and 212 use this convention) + reference ISO 639-2 in the text RESOLUTION Adopted the proposed solution.	
France	ISSUE NUMBER: FRA-6 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 8.2.4 DESCRIPTION: As a section name shall be the unique identifier of a data section, the attribute section should be of type identifier ((type defined in ISO 10303-41). PROPOSED SOLUTION: Replace type section_name by type identifier, defined in ISO 10303-41 Reference from support_resource_schema (identifier); RESOLUTION Added new type exchange_structure_identifier with the same definition as the P41 identifier type as well as a note stating “The exchange_structure_identifier type serves the same purpose the identifier type in ISO 10303-41 but has been defined separately in order to keep this part of ISO 10303 independent from the data models defined in ISO 10303 integrated resource series parts.”	**Accepted**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
France	ISSUE NUMBER: FRA-7 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 8.2.4 DESCRIPTION: As a language name shall be the identification code of a language, the attribute default_language should be of type identifier ((type defined in ISO 10303-41). PROPOSED SOLUTION: Replace type language_name by type identifier, defined in ISO 10303-41 RESOLUTION Adopted the same solution as FRA-6.	**Accepted**
France	ISSUE NUMBER: FRA-8 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 5.2 CLASSIFICATION: MINOR EDITORIAL DESCRIPTION: The current last character of the group SPECIAL in Table 1 does not appear in the table D.1 (annex D). Therefore, the group SPECIAL does not conform to Table D1 as presented in annex D PROPOSED SOLUTION: make table 1 consistent with table D.1 .	**Accepted**

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	RESOLUTION Character 0x60 (backtick) was already present, but difficult to see because of table spacing. Added more whitespace to top and bottom table boundaries.	
France	ISSUE NUMBER: FRA-9 ORIGINATOR: P. Huau,GOSET,pascalhuau@compuserve.com CLAUSE: 6.3.4 CLASSIFICATION: MINOR EDITORIAL DESCRIPTION: As a file may contain several data sections, it is quite important to precise in which domain the entity instance names shall be unique. PROPOSED SOLUTION: Add a sentence, in the clause, that specifies that an entity instance name shall be unique in the whole set of data sections of the file. RESOLUTION Clarified wording in Section 9.1, where the data section entity instance name assignment is discussed.	**Accepted**
Germany	ISSUE NUMBER: GER 21-1 AUTHOR: Lothar Klein, LKSoftWare CLAUSE: Annex E.1.3 String encoding CLASSIFICATION: MINOR, TECHNICAL DESCRIPTION: Support for ISO 8859-1 to -9 and ISO 10646 is mandatory, see clause "6.3.3 String".	**Accepted**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	Therefor any valid implementation shall support these string encodings for reading. However the question remains what an implementation can do with extended characters afterwards. A question is also which characters can be written by an implementation. PROPOSED SOLUTION: Replace the questions in E.1.3 with this How does the implementation represents ISO 8859-1 characters read in with the \S\ encoding? How does the implementation represents ISO 8859-2 characters read in with the \PB\\S\ encoding? How does the implementation represents ISO 8859-3 characters read in with the \PC\\S\ encoding? How does the implementation represents ISO 8859-4 characters read in with the \PD\\S\ encoding? How does the implementation represents ISO 8859-5 characters read in with the \PE\\S\ encoding? How does the implementation represents ISO 8859-6 characters read in with the \PF\\S\ encoding? How does the implementation represents ISO 8859-7 characters read in with the \PG\\S\ encoding? How does the implementation represents ISO 8859-8 characters read in with the \PH\\S\ encoding? How does the implementation represents ISO 8859-9 characters read in with the \PI\\S\ encoding? How does the implementation represents ISO 10646 characters read in with the \X2\ encoding?	

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	How does the implementation represents ISO 10646 characters read in with the \X4\ encoding? Does the implementation writes ISO 8859-1 characters with the \S\ encoding? Does the implementation writes ISO 8859-2 characters with the \PB\\S\ encoding? Does the implementation writes ISO 8859-3 characters with the \PC\\S\ encoding? Does the implementation writes ISO 8859-4 characters with the \PD\\S\ encoding? Does the implementation writes ISO 8859-5 characters with the \PE\\S\ encoding? Does the implementation writes ISO 8859-6 characters with the \PF\\S\ encoding? Does the implementation writes ISO 8859-7 characters with the \PG\\S\ encoding? Does the implementation writes ISO 8859-8 characters with the \PH\\S\ encoding? Does the implementation writes ISO 8859-9 characters with the \PI\\S\ encoding? Does the implementation writes ISO 10646 characters with the \X2\ encoding? Does the implementation writes ISO 10646 characters with the \X4\ encoding? RESOLUTION: Reworked the questions so that they have one checkbox for reading and one for writing. On the questions for string encoding, an implementation that claims to read a particular encoding is asked for the binary representation used by the implementation.	
Germany	ISSUE NUMBER: GER 21-2 AUTHOR: Lothar Klein, LKSoftWare CLAUSE: 8.2.2 file_name CLASSIFICATON: minor, technical DESCRIPTION: "time_stamp" is a kind of TYPE information, it does not define a role. PROPOSED SOLUTION: Add TYPE time_stamp = STRING(256);	**Accepted** **Issues FRA-6, FRA-7, and GER-2 are treated together.**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	Change to ENTITY file_name; ... creation_date : time_stamp; ... END_ENTITY; RESOLUTION: Adopted the same solution as FRA-6.	
Germany	ISSUE NUMBER: GER 21-3 AUTHOR: Lothar Klein, LKSoftWare CLAUSE: 8, Header section CLASSIFICATON: major, technical DESCRIPTION: In the case of several data sections it is not clear which data sections forms together or are intended to form a valid population according to the underlying express schema(s). This is important e.g. for global rules and cardinality constraints of inverse attributes. Part21 needs to identify: - which data sections forms or are intended to form a valid population for which schema. - Is the data validated and when does this happen. In ISO 10303-22 (SDAI) the session entity schema_instance is defined for this purpose. PROPOSED SOLUTION: According to SDAI, clause 8.4.1 add a new entity SCHEMA_INSTANCE	**Requirements deferred to next edition.**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	to the header section as new clause "8.4 Schema-instance". ENTITY schema_instance; name : schema_instance_name; associated_models : SET [0:?] OF section_name; native_schema : schema_name; change date : OPTIONAL time_stamp; validation_date : OPTIONAL time_stamp; validation_resut : LOGICAL; validation_level : INTEGER; UNIQUE UR1 : name; END_ENTITY; TYPE schema_instance_name = STRING; Implementations may create zero, one or many schema_instances. Example SCHEMA_INSTANCE('name', ('model1', 'model2', 'modelx') 'native_schema', '1999-12-20T15:30;00', '1999-12-20T15:40;00', .T., 2);	

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	REMARK: The schema instance is an optional capability of an exchange structure and is therefore upward compatible. RESOLUTION: Next version should describe how to use P21 to exchange an SDAI repository. Solution adopted in CAN-5 designed to permit additional methods, such as described, to be defined.	
Germany	ISSUE NUMBER: GER 21-4 AUTHOR: Lothar Klein, LKSoftWare CLAUSE: 10.4 Mapping of the EXPRESS element CONSTANT CLASSIFICATON: major, technical DESCRIPTION: EXPRESS constants shall be fully supported by part21 for any attribute of an entity instance and aggregate instance member. This will e.g. become important for the standard library of the ISO 15926 (OIL & GAS) standard. PROPOSED SOLUTION: EXPRESS constants shall be mapped to the exchange structure with their constant name. Support for constants may be optional. Example: CONSTANT origin : point = point(0,0,0); ENTITY point; x:INTEGER; y:INTEGER; z:INTEGER; END_ENTITY; ENTITY line;	**Requirements deferred to next edition.**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	start : point; end : point; END_ENTITY; can be used as: #10=POINT(5,10,7); #20=LINE(ORIGIN, #10);	
Japan	ISSUE NUMBER: JPN-1 AUTHOR: Hiroshi MURAYAMA / Toshiba CLAUSE: Annex E.1.3 String encoding CLASSIFICATON: minor, technical DESCRIPTION: The capability of an implementation for the display of characters is not clear from the choice of words. PROPOSED SOLUTION: Add representation or display characteristic. Replace with the following Does the implementation support the /X/ encoding for 8-bit bytes? ___ for reading only ___ for writing only __ both reading and writing ___ for reading and representation ___ for writing and representation ___ for reading, writing and representation ___ neither Does the implementation support the /S/ and /P/ encoding for ISO 8859 characters? ___ for reading only ___ for writing only __ both reading and writing ___ for reading and representation ___ for writing and representation ___ for reading, writing and representation ___ neither	**Accepted** **Issues GER-3 and JPN-1 are treated together.**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	Does the implementation support the /X2/ encoding for ISO 10646 characters? ___ for reading only ___ for writing only __ both reading and writing ___ for reading and representation ___ for writing and representation ___ for reading, writing and representation ___ neither Does the implementation support the /X4/ encoding for ISO 10646 characters? ___ for reading only ___ for writing only __ both reading and writing ___ for reading and representation ___ for writing and representation ___ for reading, writing and representation ___ neither RESOLUTION: Reworked the questions so that they have one checkbox for reading and one for writing. On the questions for string encoding, an implementation that claims to read a particular encoding is asked for the binary representation used by the implementation	
Japan	ISSUE NUMBER: JPN-2 AUTHOR: Hiroshi MURAYAMA / Toshiba CLAUSE: 10.4 Mapping of the EXPRESS element CONSTANT CLASSIFICATON: major, technical DESCRIPTION: The original proposal does not support CONSTANT expression in EXPRESS. CONSTANTs must be supported by Part 21. CONSTANT is an important notion that tells the importing system of a Part 21 that its value(s) cannot be changed or updated. A good example is the origin of coordinates. In some cases, it is a set of fixed values that is referenced by many entities as a static point (in particular when it is the origin of the universal coordinates). In some other	**Requirements deferred to next edition.**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	cases, it is a variable point when it is just the origin of a user coordinate system. The present Part 21 construct cannot distinguish the two cases and gives ambiguity to the interpretation by recipient system of the file. PROPOSED SOLUTION: Implement the following: CONSTANT section must appear separately with respect to DATA SECTION or appear before or after the substantial part of the numbered instance lines.	
Japan	ISSUE NUMBER: JPN-3 AUTHOR: Hiroshi MURAYAMA / Toshiba CLAUSE: 10.1.2 List, 10.1.3 Array, 10.1.4 Set CLASSIFICATON: major, technical DESCRIPTION: In the draft standard, null cannot be an element of Set , or specifically so noted in the clause 10.1.4 for Set such that “SET is not allowed to have missing members”. Although mathematically, null in the sense of an empty set is an element of any set. When () means a mathematical set, it does neither mean, that there’s no element for the set or there is no such set, rather it mean there is a set and there IS an element of the set that represents NULL. The description B of the Part 21 specification forbids the definition as null as a member of set is a grave problem when one has to represent A SET of SETs in which {} (=($)) would be found. Preferably EXPRESS must be modified, too. In practice, this lack of capacity makes a	**Rejected**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	class library definition very difficult, such as PLIB or in OIL & GAS standard, almost to the extent that one has to give up the use Part21 as a means of exchange of the library content. See the recent SQL definition null can be a value of an attribute (or the void of value for an attribute). This means, SQL table content cannot be mapped to Part21 constructs. PROPOSED SOLUTION Allow '$' must be allowed as an element of LIST in Part 21. Or introduce subtype of the LIST such that OPTIONAL_NULL_LIST. Existence of null can pose a problem when the list is used as a key column of a relational database, therefore, an option of list with no null member must be provided when OPTIONAL_NULL_LIST is allowed. List, Set with '$' in EXPRESS be mapped to LIST in Part 21. RESOLUTION This is a comment on the semantics of EXPRESS and should be submitted as a comment on that document. The change proposed by the comment would introduce new semantics to P21 that do not exist in EXPRESS. Furthermore, if the change was made to EXPRESS so that $ is a semantically valid element of lists sets and bags, the WSN for P21 and the mapping rules would permit their use in P21 with no further changes to the syntax.	
	ISSUE NUMBER: JPN-4 AUTHOR: Hiroshi MURAYAMA / Toshiba CLAUSE: 10.1.2 List CLASSIFICATON: major, technical	**Rejected** **Issues JPN-3 and JPN-4 are treated together.**

MEMBER BODY	COMMENTS	OBSERVATIONS OF THE PROJECT
	DESCRIPTION: In the draft standard, null cannot be an element of LIST. PROPOSED SOLUTION LIST must be considered an ordered SET. Therefore, for the reason that '$' must be added as a possible member of SET, it must be allowed to be a member of LIST. Or introduce subtype of the LIST such as OPTIONAL_NULL_LIST. Existence of null can pose a problem when the list is used as a key column of a relational database, therefore, a specification for list with no null member must be provided when OPTIONAL_NULL_LIST is allowed. Add Null member representation capacity to LIST.	

Additional issues addressed by the project.

SEDS #28 Closed, addressed by Technical Corrigendum #1 in 1995.
SEDS #83 Closed, editorial corrections.
SEDS #84 Closed, editorial corrections.
SEDS #103 Rejected.
SEDS #269 Closed, handled in the IRs through the use of multi_language_attribute_assignment.